



Leu	Gly	Ser	Trp	Asn	Gly	Ser	Gly	<sup>2</sup> 15	Ser	Gly	625											
Gly	Gly	Arg	Pro	Glu	Gly	Ser	Pro	30	Lys	Ala	Ala	Gly	Tyr	Ala	Asn	Pro	35	40	45	50	55	60
gtg	tgg	aca	gcc	ctg	tgc	gac	tac	50	gag	ccc	agt	ggg	cag	gat	gag	ctg	55	60	65	70	75	80
Val	Trp	Thr	Ala	Leu	Phe	Asp	Tyr	55	Glu	Pro	Ser	Gly	Gln	Asp	Glu	Leu	60	65	70	75	80	85
gcc	ctg	agg	aag	ggt	gac	cgt	gtg	65	gag	gtg	ctg	tcc	cgg	gac	gca	gcc	70	75	80	85	90	95
Ile	Ser	Gly	Asp	Glu	Gly	Trp	Trp	80	Ala	Gly	Gln	Val	Gly	Gly	Gly	Gly	85	90	95	100	105	110
gac	gag	gtg	gcc	agc	tcc	aac	tat	95	gtg	tct	cgg	ggt	ggt	ggc	ccg	ccc	ccc	ccc	ccc	ccc	ccc	115
Cys	Glu	Val	Ala	Ser	Phe	Gln	Glu	110	ctg	ctg	ctg	gag	gtg	gag	gtg	atc	gac	gtg	atc	gac	gtg	120
att	gga	ggc	ttt	ggc	aag	gtg	tac	125	agg	ggc	agc	tgg	cga	ggt	gag	ctg	130	135	140	145	150	155
Ile	Gly	Gly	Phe	Gly	Lys	Val	Tyr	130	Arg	Gly	Ser	Trp	Arg	Gly	Gly	Gly	135	140	145	150	155	160
gtg	gct	gtg	aag	gca	gct	cgc	cag	145	gac	ccc	gat	gag	gac	atc	agt	gtg	150	155	160	165	170	175
aca	gcc	gag	agc	gtt	cgc	cag	gag	160	gcc	cgg	ctc	tcc	gcc	atg	ctg	gca	165	170	175	180	185	190
His	Pro	Asn	Ile	Ile	Ala	Leu	Lys	175	Ala	Arg	Leu	Phe	Ala	Met	Leu	Ala	180	185	190	195	200	205
ctg	tgc	ctg	gtg	atg	gag	tat	gca	210	gcc	gtt	tgc	ctg	gag	gag	ccc	ctc	agc	cga	gct	ctc	215	220
Leu	Cys	Leu	Val	Met	Glu	Tyr	Ala	215	Ala	Gly	Gly	Pro	Leu	Ser	Arg	Ala	220	225	230	235	240	245
ctg	gcc	ggg	cgg	cgc	gtg	cct	ccc	225	cat	gtg	ctg	gtc	aac	tgg	gct	gtg	230	235	240	245	250	255
Leu	Ala	Gly	Arg	Arg	Val	Pro	Pro	230	His	Val	Leu	Val	Asn	Trp	Ala	Val	235	240	245	250	255	260
cag	att	gcc	cgt	ggg	atg	cac	tac	235	ctg	cac	tgc	gag	gcc	ctg	gtg	ccc	240	245	250	255	260	265
Gln	Ile	Ala	Arg	Gly	Met	His	Tyr	240	Leu	His	Cys	Glu	Ala	Leu	Leu	Leu	245	250	255	260	265	270
gtc	atc	cac	cgt	gat	ctc	aag	tcc	245	aac	aac	att	ttg	ctg	ctg	cag	ccc	250	255	260	265	270	275
Val	Ile	His	Arg	Asp	Leu	Lys	Ser	250	Asn	Asn	Ile	Leu	Leu	Leu	Gln	Pro	255	260	265	270	275	280
att	gag	agt	gac	gac	atg	gag	cac	260	aag	acc	ctg	aag	atc	acc	gac	ttt	265	270	275	280	285	290
Ile	Glu	Ser	Asp	Asp	Met	Glu	His	265	Lys	Thr	Leu	Lys	Ile	Thr	Asp	Phe	270	275	280	285	290	295
ggc	ctg	gcc	cga	gag	tgg	cac	aaa	270	acc	aca	caa	atg	agt	gcc	gcg	ggc	275	280	285	290	295	300
Gly	Leu	Ala	Arg	Glu	Trp	His	Lys	275	Thr	Thr	Gln	Met	Ser	Ala	Ala	Gly	280	285	290	295	300	305
acc	tac	gcc	tgg	atg	gct	cct	gag	280	gtt	atc	aag	gcc	tcc	acc	tcc	tct	285	290	295	300	305	310
Thr	Tyr	Ala	Trp	Met	Ala	Pro	Glu	285	Val	Ile	Lys	Ala	Ser	Thr	Phe	Ser	290	295	300	305	310	315

285	290	3	295	300	
aag ggc agt gac gtc tgg agt ttt ggg gtg	305	3	ctg ctg tgg gaa	ctg ctg	1441
Lys Gly Ser Asp Val Trp Ser Phe Gly Val			Leu Leu Trp Glu	Leu Leu	
310				315	
acc ggg gag gtg cca tac cgt ggc att	320	gac tgc ctt gct	gtg gcc tat		1489
Thr Gly Glu Val Pro Tyr Arg Gly Ile		Asp Cys Leu Ala	Val Ala Tyr		
325			330		
ggc gta gct gtt aac aag ctc aca ctg ccc atc	335	cca tcc acc tgc ccc			1537
Gly Val Ala Val Asn Lys Leu Thr Leu Pro Ile		Pro Ser Thr Cys Pro			
340		345			
gag ccc ttc gca cag ctt atg gcc gac tgc tgg	350	gcg cag gac ccc cac			1585
Glu Pro Phe Ala Gln Leu Met Ala Asp Cys Trp		Ala Gln Asp Pro His			
355		360			
cgc agg ccc gac ttc gcc tcc atc ctg cag cag	365	ttg gag gcg ctg gag			1633
Arg Arg Pro Asp Phe Ala Ser Ile Leu Gln Gln		Leu Glu Ala Leu Glu			
370		375	380		
gca cag gtc cta cgg gaa atg ccg cgg gac tcc	385	ttc cat tcc atg cag			1681
Ala Gln Val Leu Arg Glu Met Pro Arg Asp Ser		Phe His Ser Met Gln			
390		395			
gaa ggc tgg aag cgc gag atc cag ggt ctc ttc	400	gac gag ctg cga gcc			1729
Glu Gly Trp Lys Arg Glu Ile Gln Gly Leu Phe		Asp Glu Leu Arg Ala			
405		410			
aag gaa aag gaa cta ctg agc cgc gag gag	415	ctg acg cga gcg gcg			1777
Lys Glu Lys Glu Leu Leu Ser Arg Glu Glu Glu		Thr Arg Ala Ala			
420		425			
cgc gag cag cgg tca cag gcg gag cag ctg cgg	430	cgg cgc gag cac ctg			1825
Arg Glu Gln Arg Ser Gln Ala Glu Gln Leu Arg		Arg Arg Glu His Leu			
435		440			
ctg gcc cag tgg gag cta gag gtg ttc gag cgc	445	gag ctg acg ctg ctg			1873
Leu Ala Gln Trp Glu Leu Glu Val Phe Glu Arg		Leu Thr Leu Leu			
450		455	460		
ctg cag cag gtg gac cgc gag cga ccg cac gtg	465	cgc cgc cgc cgc ggg			1921
Leu Gln Gln Val Asp Arg Glu Arg Pro His Val		Val Arg Arg Arg Gly			
470		475			
aca ttc aag cgc agc aag ctc cgg gcg cgc gac	480	gac ggc ggc gag cgt atc			1969
Thr Phe Lys Arg Ser Lys Leu Arg Ala Arg Asp		Gly Ile			
485		490			
agc atg cca ctc gac ttc aag cac cgc atc acc	495	gtg cag gcc tca ccc			2017
Ser Met Pro Leu Asp Phe Lys His Arg Ile Thr		Ile Val Gln Ala Ser Pro			
500		505			
ggc ctt gac cgg agg aga aac gtc ttc gag gtc	510	ggg cct ggg gat tcg			2065
Gly Leu Asp Arg Arg Arg Asn Val Phe Glu Val		Gly Pro Gly Asp Ser			
515		520			
ccc acc ttt ccc cgg ttc cga gcc atc cag ttg	525	gag cct gca gag cca			2113
Pro Thr Phe Pro Arg Phe Arg Ala Ile Gln Leu		Pro Ala Glu Pro			
530		535			
ggc cag gca tgg ggc cgc cag tcc ccc cga cgt	545	ctg gag gac tca agc			2161
Gly Gln Ala Trp Gly Arg Gln Ser Pro Arg Arg		Leu Glu Asp Ser Ser			
550		555			
aat gga gag cgg cga gca tgc tgg gct tgg ggt	560	ccc agt tcc ccc aag			2209
Asn Gly Glu Arg Arg Ala Cys Trp Ala Trp Gly		Pro Ser Ser Pro Lys			
565		570			

cct	ggg	gaa	gcc	cag	aat	ggg	agg	aga	agg	tcc	cgc	atg	gac	gaa	gcc	2257
Pro	Gly	Glu	Ala	Gln	Asn	Gly	Arg	Arg	Arg	Ser	Arg	Met	Asp	Glu	Ala	
575						580						585				
aca	tgg	tac	ctg	gat	tca	gat	gac	tca	tcc	ccc	tta	gga	tct	cct	tcc	2305
Thr	Trp	Tyr	Leu	Asp	Ser	Asp	Asp	Ser	Ser	Pro	Leu	Gly	Ser	Pro	Ser	
590						595					600					
aca	ccc	cca	gca	ctc	aat	ggt	aac	ccc	ccg	cgg	cct	agc	ctg	gag	ccc	2353
Thr	Pro	Pro	Ala	Leu	Asn	Gly	Asn	Pro	Pro	Arg	Pro	Ser	Leu	Glu	Pro	
605						610				615						
gag	gag	ccc	aag	agg	cct	gtc	ccc	gca	gag	cgc	ggt	agc	agc	tct	ggg	2401
Glu	Glu	Pro	Lys	Arg	Pro	Val	Pro	Ala	Glu	Arg	Gly	Ser	Ser	Ser	Gly	
625									630					635		
acg	ccc	aag	ctg	atc	cag	cgg	gca	ctg	ctg	cgc	gac	acc	gcc	ctg	ctc	2449
Thr	Pro	Lys	Leu	Ile	Gln	Arg	Ala	Leu	Leu	Arg	Gly	Thr	Ala	Leu	Leu	
640								645				650				
gcc	tcg	ctg	ggc	ctt	ggc	cgc	gac	ctg	cag	ccg	ccg	gga	ggc	cca	gga	2497
Ala	Ser	Leu	Gly	Leu	Gly	Arg	Asp	Leu	Gln	Pro	Pro	Gly	Gly	Pro	Gly	
655						660				665						
cgc	gag	cgc	ggg	gag	tcc	ccg	aca	aca	ccc	ccc	acg	cca	acg	ccc	gcg	2545
Arg	Glu	Arg	Gly	Glu	Ser	Pro	Thr	Thr	Pro	Pro	Thr	Pro	Thr	Pro	Ala	
670						675					680					
ccc	tgc	ccg	acc	gag	ccg	ccc	cct	tcc	ccg	ctc	atc	tgc	ttc	tcg	ctc	2593
Pro	Cys	Pro	Thr	Glu	Pro	Pro	Pro	Ser	Pro	Leu	Ile	Cys	Phe	Ser	Leu	
685					690					695						
aag	acg	ccc	gac	tcc	ccg	ccc	act	cct	gca	ccc	ctg	ttg	ctg	gac	ctg	2641
Lys	Thr	Pro	Asp	Ser	Pro	Pro	Thr	Pro	Ala	Pro	Leu	Leu	Leu	Asp	Leu	
705									710					715		
ggt	atc	cct	gtg	ggc	cag	cgg	tca	gcc	aag	agc	ccc	cga	cgt	gag	gag	2689
Gly	Ile	Pro	Val	Gly	Gln	Arg	Ser	Ala	Lys	Ser	Pro	Arg	Arg	Glu	Glu	
720								725					730			
gag	ccc	cgc	gga	ggc	act	gtc	tca	ccc	cca	ccg	ggg	aca	tca	cgc	tct	2737
Glu	Pro	Arg	Gly	Gly	Thr	Val	Ser	Pro	Pro	Pro	Gly	Thr	Ser	Arg	Ser	
735						740					745					
gct	cct	ggc	acc	cca	ggc	acc	cca	cgt	tca	cca	ccc	ctg	ggc	ctc	atc	2785
Ala	Pro	Gly	Thr	Pro	Gly	Thr	Pro	Arg	Ser	Pro	Pro	Pro	Leu	Gly	Leu	Ile
750						755					760					
agc	cga	cct	cgg	ccc	tcg	ccc	ctt	cgc	agc	cgc	att	gat	ccc	tgg	agc	2833
Ser	Arg	Pro	Arg	Pro	Ser	Pro	Leu	Arg	Ser	Arg	Ile	Asp	Pro	Trp	Ser	
765					770					775						
ttt	gtg	tca	gct	ggg	cca	cgg	cct	tct	ccc	ctg	cca	tca	cca	cag	cct	2881
Phe	Val	Ser	Ala	Gly	Pro	Arg	Pro	Ser	Pro	Leu	Pro	Ser	Pro	Gln	Pro	
785								790						795		
gca	ccc	cgc	cga	gca	ccc	tgg	acc	ttg	ttc	ccg	gac	tca	gac	ccc	ttc	2929
Ala	Pro	Arg	Arg	Ala	Pro	Trp	Thr	Leu	Phe	Pro	Asp	Ser	Asp	Pro	Phe	
800								805					810			
tgg	gac	tcc	cca	cct	gcc	aac	ccc	ttc	cag	ggg	ggc	ccc	cag	gac	tgc	2977
Trp	Asp	Ser	Pro	Pro	Ala	Asn	Pro	Phe	Gln	Gly	Gly	Pro	Gln	Asp	Cys	
815						820					825					
agg	gca	cag	acc	aaa	gac	atg	ggt	gcc	cag	gcc	ccg	tgg	gtg	ccg	gaa	3025
Arg	Ala	Gln	Thr	Lys	Asp	Met	Gly	Ala	Gln	Ala	Pro	Trp	Val	Pro	Glu	
830						835					840					

5

gcg ggg cct tga gtggccagg ccactcccc gagctccagc tgccttagga 3077  
 Ala Gly Pro  
 845

ggagtcacag catacactgg aacaggagct gggtcagcct ctgcagctgc ctcagttcc 3137  
 ccagggaccc cacccccctt tgggggtcag gaacactaca ctgcacagga agccttcaca 3197  
 ctggaaagggg gacctgcgcc cccacatctg aaacctgttag gtccccccag ctcacctgcc 3257  
 ctactggggc ccaacactgt acccagctgg ttgggaggac cagagcctgt ctcagggaaat 3317  
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 gtcaccagca ctttgacca agtcctgcta ctgcggccccc tgccctaggg ctttagagcat 3437  
 ggacctcctg ccctgggggt catctggggc cagggctctc tggatgcctt cctgctgccc 3497  
 cagccagggt tggagtctta gcctcggtat ccagtgaagc cagaagccaa ataaactcaa 3557  
 aagctgtctc cccaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa 3603

&lt;210&gt; 2

&lt;211&gt; 847

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 2

Met Glu Pro Leu Lys Ser Leu Phe Leu Lys Ser Pro Leu Gly Ser Trp  
 1 5 10 15

Asn Gly Ser Gly Ser Gly Gly Gly Gly Gly Gly Arg Pro  
 20 25 30

Glu Gly Ser Pro Lys Ala Ala Gly Tyr Ala Asn Pro Val Trp Thr Ala  
 35 40 45

Leu Phe Asp Tyr Glu Pro Ser Gly Gln Asp Glu Leu Ala Leu Arg Lys  
 50 55 60

Gly Asp Arg Val Glu Val Leu Ser Arg Asp Ala Ala Ile Ser Gly Asp  
 65 70 75 80

Glu Gly Trp Trp Ala Gly Gln Val Gly Gly Gln Val Gly Ile Phe Pro  
 85 90 95

Ser Asn Tyr Val Ser Arg Gly Gly Pro Pro Pro Cys Glu Val Ala  
 100 105 110

Ser Phe Gln Glu Leu Arg Leu Glu Glu Val Ile Gly Ile Gly Gly Phe  
 115 120 125

Gly Lys Val Tyr Arg Gly Ser Trp Arg Gly Glu Leu Val Ala Val Lys  
 130 135 140

Ala Ala Arg Gln Asp Pro Asp Glu Asp Ile Ser Val Thr Ala Glu Ser  
145 150 155 160

Val Arg Gln Glu Ala Arg Leu Phe Ala Met Leu Ala His Pro Asn Ile  
165 170 175

Ile Ala Leu Lys Ala Val Cys Leu Glu Glu Pro Asn Leu Cys Leu Val  
180 185 190

Met Glu Tyr Ala Ala Gly Gly Pro Leu Ser Arg Ala Leu Ala Gly Arg  
195 200 205

Arg Val Pro Pro His Val Leu Val Asn Trp Ala Val Gln Ile Ala Arg  
210 215 220

Gly Met His Tyr Leu His Cys Glu Ala Leu Val Pro Val Ile His Arg  
225 230 235 240

Asp Leu Lys Ser Asn Asn Ile Leu Leu Leu Gln Pro Ile Glu Ser Asp  
245 250 255

Asp Met Glu His Lys Thr Leu Lys Ile Thr Asp Phe Gly Leu Ala Arg  
260 265 270

Glu Trp His Lys Thr Thr Gln Met Ser Ala Ala Gly Thr Tyr Ala Trp  
275 280 285

Met Ala Pro Glu Val Ile Lys Ala Ser Thr Phe Ser Lys Gly Ser Asp  
290 295 300

Val Trp Ser Phe Gly Val Leu Leu Trp Glu Leu Leu Thr Gly Glu Val  
305 310 315 320

Pro Tyr Arg Gly Ile Asp Cys Leu Ala Val Ala Tyr Gly Val Ala Val  
325 330 335

Asn Lys Leu Thr Leu Pro Ile Pro Ser Thr Cys Pro Glu Pro Phe Ala  
340 345 350

Gln Leu Met Ala Asp Cys Trp Ala Gln Asp Pro His Arg Arg Pro Asp  
355 360 365

Phe Ala Ser Ile Leu Gln Gln Leu Glu Ala Leu Glu Ala Gln Val Leu  
370 375 380

Arg Glu Met Pro Arg Asp Ser Phe His Ser Met Gln Glu Gly Trp Lys  
385 390 395 400

Arg Glu Ile Gln Gly Leu Phe Asp Glu Leu Arg Ala Lys Glu Lys Glu  
405 410 415

Leu Leu Ser Arg Glu Glu Glu Leu Thr Arg Ala Ala Arg Glu Gln Arg  
420 425 430

Ser Gln Ala Glu Gln Leu Arg Arg Arg Glu His Leu Leu Ala Gln Trp  
435 440 445

Glu Leu Glu Val Phe Glu Arg Glu Leu Thr Leu Leu Leu Gln Gln Val  
450 455 460

Asp Arg Glu Arg Pro His Val Arg Arg Arg Arg Gly Thr Phe Lys Arg  
465 470 475 480

Ser Lys Leu Arg Ala Arg Asp Gly Gly Glu Arg Ile Ser Met Pro Leu  
485 490 495

Asp Phe Lys His Arg Ile Thr Val Gln Ala Ser Pro Gly Leu Asp Arg  
500 505 510

Arg Arg Asn Val Phe Glu Val Gly Pro Gly Asp Ser Pro Thr Phe Pro  
515 520 525

Arg Phe Arg Ala Ile Gln Leu Glu Pro Ala Glu Pro Gly Gln Ala Trp  
530 535 540

Gly Arg Gln Ser Pro Arg Arg Leu Glu Asp Ser Ser Asn Gly Glu Arg  
545 550 555 560

Arg Ala Cys Trp Ala Trp Gly Pro Ser Ser Pro Lys Pro Gly Glu Ala  
565 570 575

Gln Asn Gly Arg Arg Arg Ser Arg Met Asp Glu Ala Thr Trp Tyr Leu  
580 585 590

Asp Ser Asp Asp Ser Ser Pro Leu Gly Ser Pro Ser Thr Pro Pro Ala  
595 600 605

Leu Asn Gly Asn Pro Pro Arg Pro Ser Leu Glu Pro Glu Glu Pro Lys  
610 615 620

Arg Pro Val Pro Ala Glu Arg Gly Ser Ser Ser Gly Thr Pro Lys Leu  
625 630 635 640

Ile Gln Arg Ala Leu Leu Arg Gly Thr Ala Leu Leu Ala Ser Leu Gly  
645 650 655

Leu Gly Arg Asp Leu Gln Pro Pro Gly Gly Pro Gly Arg Glu Arg Gly  
660 665 670

Glu Ser Pro Thr Thr Pro Pro Thr Pro Thr Pro Ala Pro Cys Pro Thr  
675 680 685

8  
Glu Pro Pro Pro Ser Pro Leu Ile Cys Phe Ser Leu Lys Thr Pro Asp  
690 695 700  
  
Ser Pro Pro Thr Pro Ala Pro Leu Leu Leu Asp Leu Gly Ile Pro Val  
705 710 715 720  
  
Gly Gln Arg Ser Ala Lys Ser Pro Arg Arg Glu Glu Glu Pro Arg Gly  
725 730 735  
  
Gly Thr Val Ser Pro Pro Pro Gly Thr Ser Arg Ser Ala Pro Gly Thr  
740 745 750  
  
Pro Gly Thr Pro Arg Ser Pro Pro Leu Gly Leu Ile Ser Arg Pro Arg  
755 760 765  
  
Pro Ser Pro Leu Arg Ser Arg Ile Asp Pro Trp Ser Phe Val Ser Ala  
770 775 780  
  
Gly Pro Arg Pro Ser Pro Leu Pro Ser Pro Gln Pro Ala Pro Arg Arg  
785 790 795 800  
  
Ala Pro Trp Thr Leu Phe Pro Asp Ser Asp Pro Phe Trp Asp Ser Pro  
805 810 815  
  
Pro Ala Asn Pro Phe Gln Gly Gly Pro Gln Asp Cys Arg Ala Gln Thr  
820 825 830  
  
Lys Asp Met Gly Ala Gln Ala Pro Trp Val Pro Glu Ala Gly Pro  
835 840 845